

"Redesigning Echo"

A case study in designing
for accessibility

Accessibility?

- What does it mean?
- Why are we doing it?
- Who are we designing for?

Technical Concerns

- Platforms
 - Most assistive technology, such as screen readers, run on PC's
- Software
 - Screen readers & audio browsers

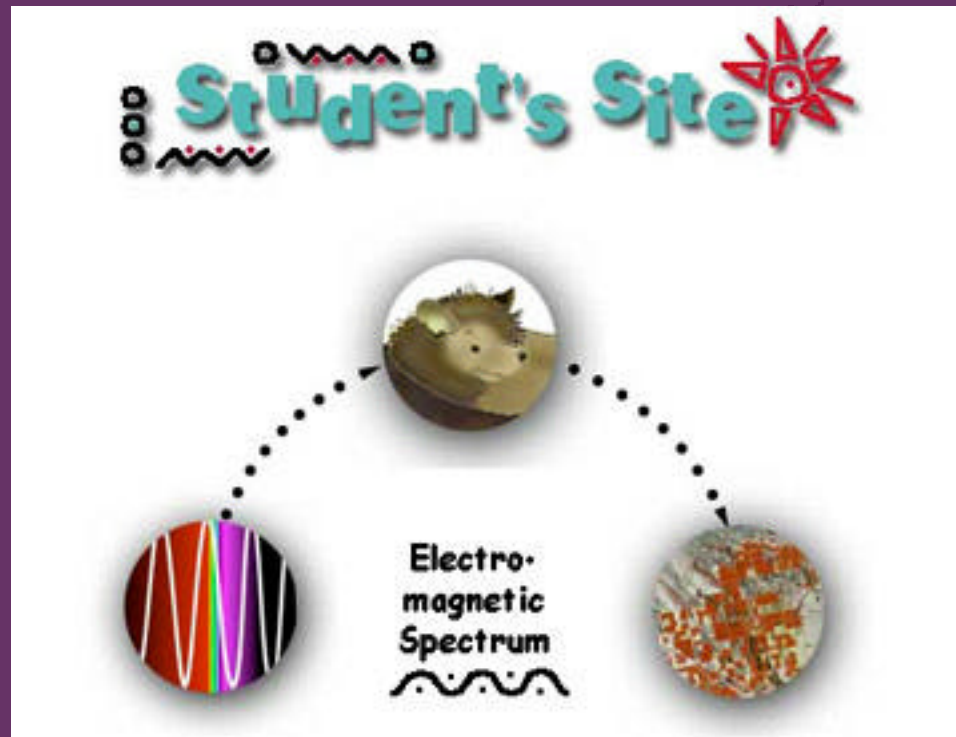
Scope of Echo Redesign

- Code pages for accessibility
- Experiment with unique approaches to presenting satellite imagery to the visually impaired
- Launch expected Fall 2000

Scope of Presentation

- Walk through of the W3C guidelines
- Our experiences and results

The Visual Medium



ALT attribute

Recommended for ALL types of
images

```
<IMG SRC="graphic.gif"  
ALT="text description">
```

Types of Images

- Aesthetic Images/Graphics
- Formatting Images/Graphics
- Informational Images/Graphics

Aesthetic Images

- not essential to understanding the page content



alt="animated fire"



alt="girl on cell phone"

Formatting Images

- The 1x1 pixel.gif trick

```

```

- Bullet .gifs

```

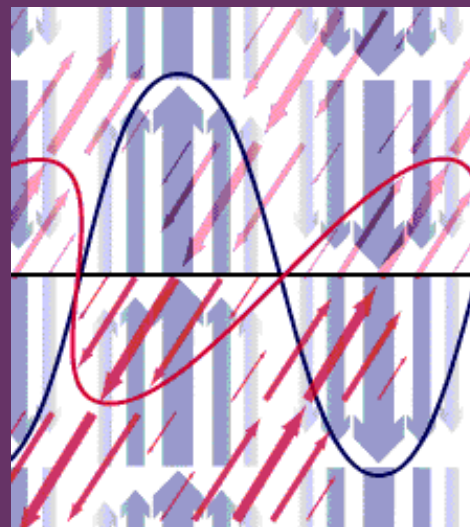
```

Informational Images

- Essential to the understanding of the content



IR cat



EM wave animation

Longer Descriptions

- via ALT attribute
- via LONGDESC attribute
- alternatives

ALT attribute concerns


What are waves?

Have you ever ridden a wave in the ocean?

Ocean waves travel on the surface of the water. You can see them and you can feel them. As you swim through the water, you can even make your own waves.

Have you ever seen a flag on a windy day?

American Flag with ripples in it.



What are waves?

Have you ever ridden a wave in the ocean?

Ocean waves travel on the surface of the water. You can see them and you can feel them. As you swim through the water, you can even make your own waves.



of waves breaking - they are ocean waves and they are blue and

Have you ever seen a flag on a windy day?

The wind creates waves in the flag. Both the waves in the flag and the ocean waves are waves



American Flag with ripples in it.

Internet Explorer Ex.

```
<table border=0 cellpadding=0 cell  
width=568><tr><td></td></tr></tabl
```

What are waves?

Have you ever
ridden a wave
in the ocean?

Ocean waves
travel on the
surface of the
water. You can
see them and
you can feel
them. As you
swim through
the water, you
can even make
your own
waves.

Have you ever
seen a flag on a
windy day?



Image of waves breaking - they are ocean waves and they are blue and stuff and I like ocean wa



American Flag with ripples in it.

Netscape - w/o height
& width

height & width?

URL	Size	Time (secs)
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/radio.html	6.09 K	1.69
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/ems.jpg3	8.54 K	2.37
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/radio.gif	3.32 K	0.92
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/radio.jpg	17.16 K	4.77
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/OS06097.JPG	16.06 K	4.46
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/cellphone.jpg	14.92 K	4.15
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/radioteles.jpg	11.77 K	3.27
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/VLA.gif	61.90 K	17.19
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/milkyway.jpg	11.38 K	3.16
Total	151.14 K	41.98
HTTP Request Delays	--	4.50
Total + Delays	--	46.48

Bobby finished.

height & width?

URL	Size	Time (secs)
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/radio_noheight.html	5.92 K	1.64
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/ems.jpg3	8.54 K	2.37
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/radio.gif	3.32 K	0.92
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/radio.jpg	17.16 K	4.77
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/OS06097.JPG	16.06 K	4.46
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/cellphne.jpg	14.92 K	4.15
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/radioteles.jpg	11.77 K	3.27
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/VLA.gif	61.90 K	17.19
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/milkyway.jpg	11.38 K	3.16
Total	150.97 K	41.94
HTTP Request Delays	--	4.50
Total + Delays	--	46.44

Bobby finished.

Recommendation

- Aesthetic images
 - Keep ALT descriptions concise
 - Consider omitting height&width if text is only a few words too long
- Informational Images
 - How do we provide lengthier descriptions to our audience?

LONDESC

- The W3C suggests using an HTML 4.0 attribute called longdesc. Within the tag, you would reference either a .html or a .txt file, which would contain your long description of the image.

```

```

BUT??

- How does a screen reader interpret this attribute?

??

"Mastering HTML 4.0"

LONGDESC="..."

Provides a long textual description of images, which is useful for visitors who have text-only browsers or cannot for other reasons view images.

Standard/Usage: HTML 4

Widely Supported: No

Sample:

```
<IMG SRC='smiley.gif' ALT=':-)'  
LONGDESC='This is a smiley face, placed  
here for decoration alone.'>
```

BREAK THIS PAGE

A great site by Joe Clark
& Aaron Doust.

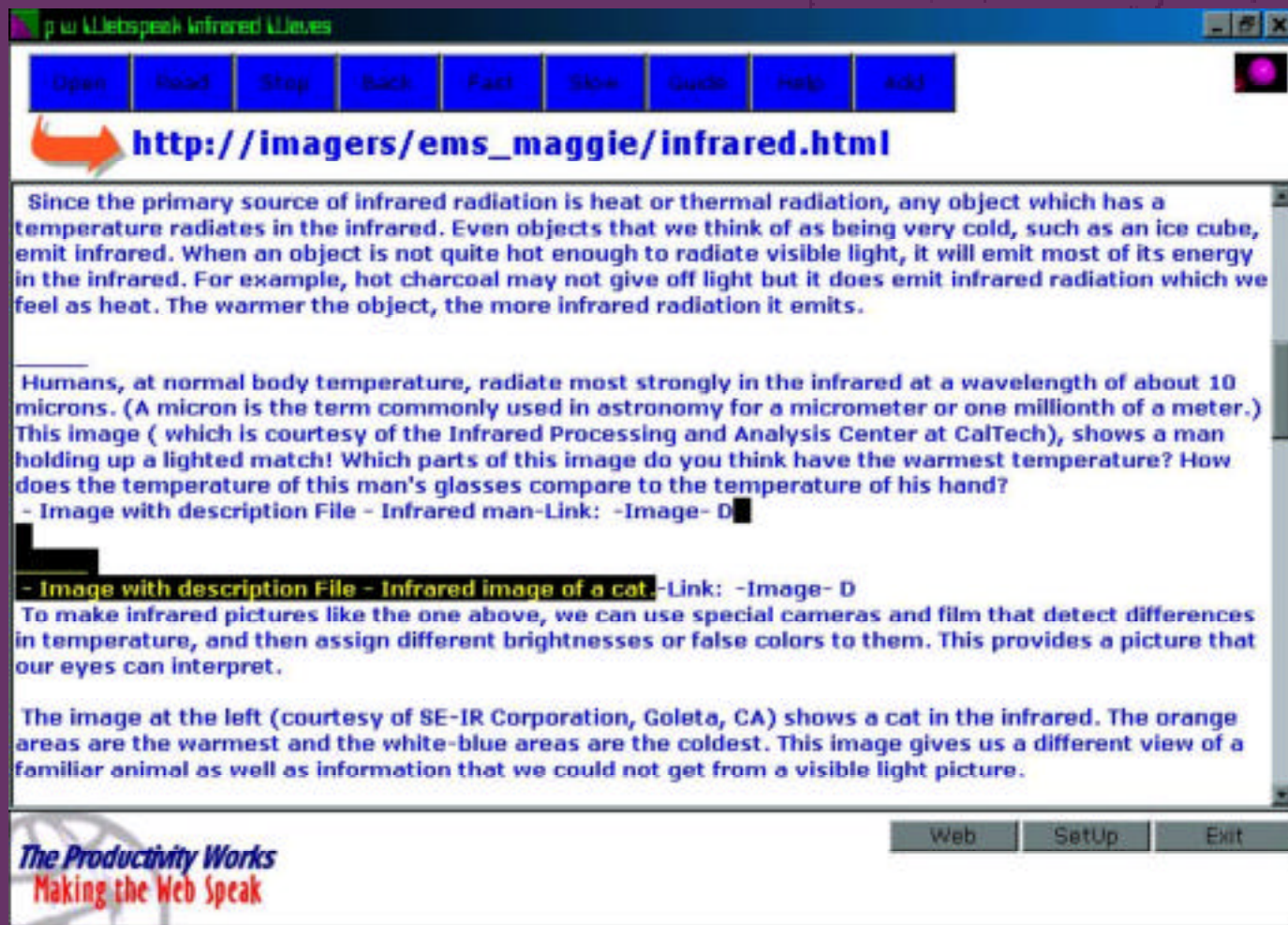
<http://www.interlog.com/~joeclark/breakthispage.html>

They tried out various methods of
implementing accessibility protocol
and then invited people to "break" their
page.

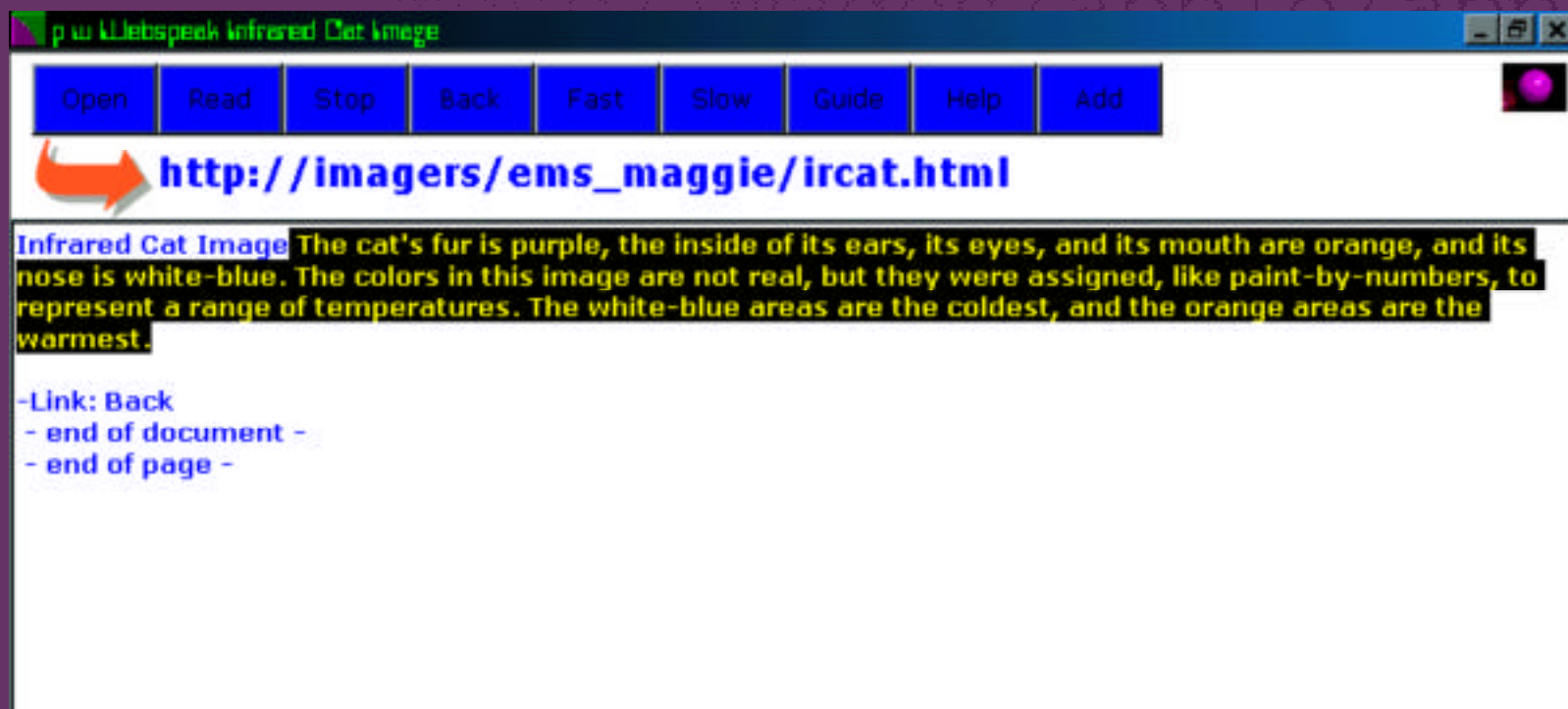
LONGDESC

Browser Support : POOR

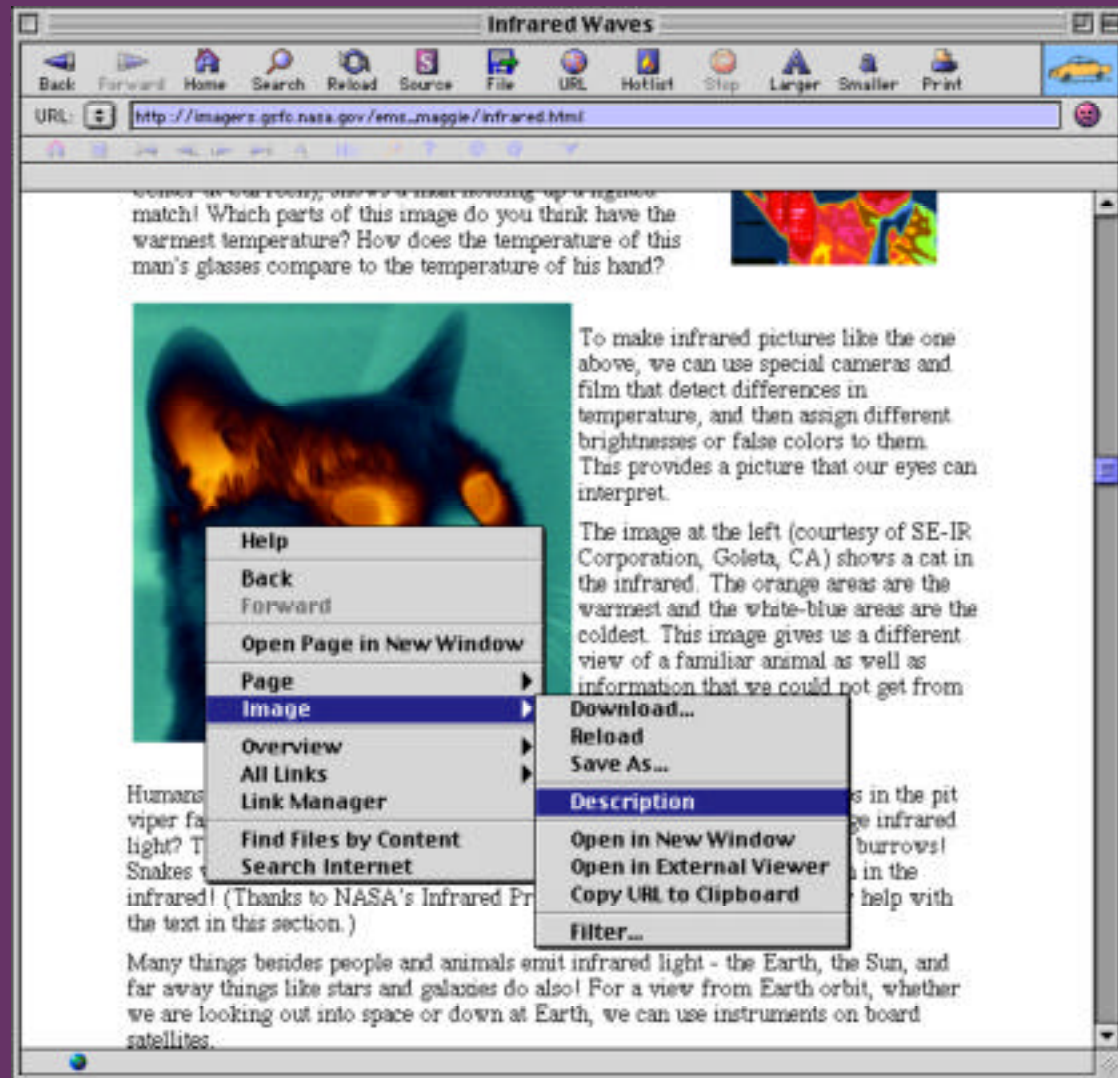
pwWebspeak



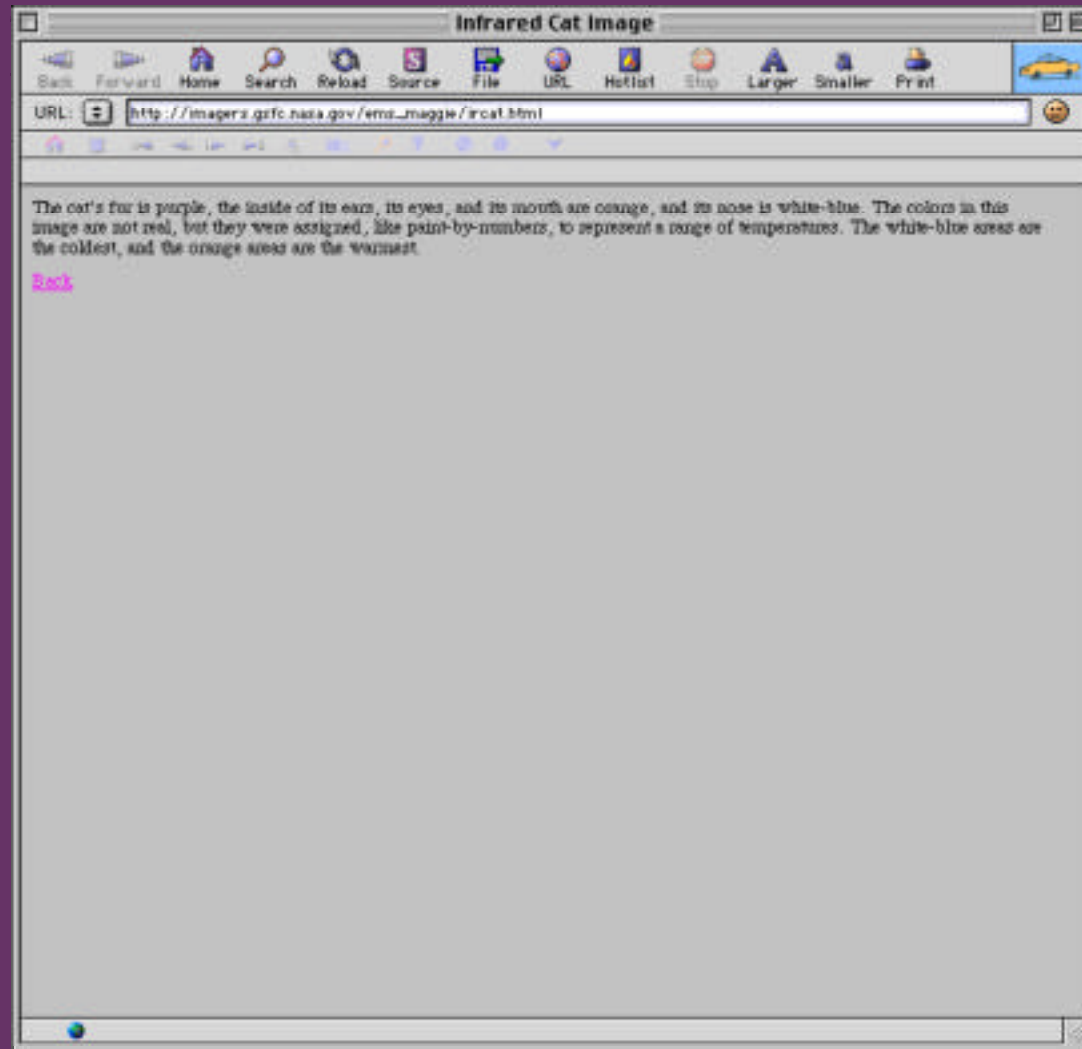
LONGDESC & pwWebspeak



iCab



iCab



Browser Support: POOR

- pwWebspeak is an audio browser, not a screenreader
- iCab is Mac software, is mouse driven
- Mozilla requires Mac OS 8.5 or later

Recommendation

- Don't use LONGDESC!!

D-links!

- What are they?
- There are 2 types of d-links
 - TEXTUAL
 - INVISIBLE

Textual D-link

```
<a
      href="yellow_cat.html">[D]</a>
```

The [D] will appear as hypertext next to the image.

Invisible d-link

```
<a
href="yellow_cat.html"></a>
```

The [D] will appear only as an ALT description, not as text on the page, enabling it to be seen when loading without images, and by JAWS.

Recommendation

- Use a .html file rather than .txt file
- D-links won't become obsolete. They work like LONGDESC should. So if LONGDESC ever starts becoming more widespread, then you don't have to replace all of your d-links.

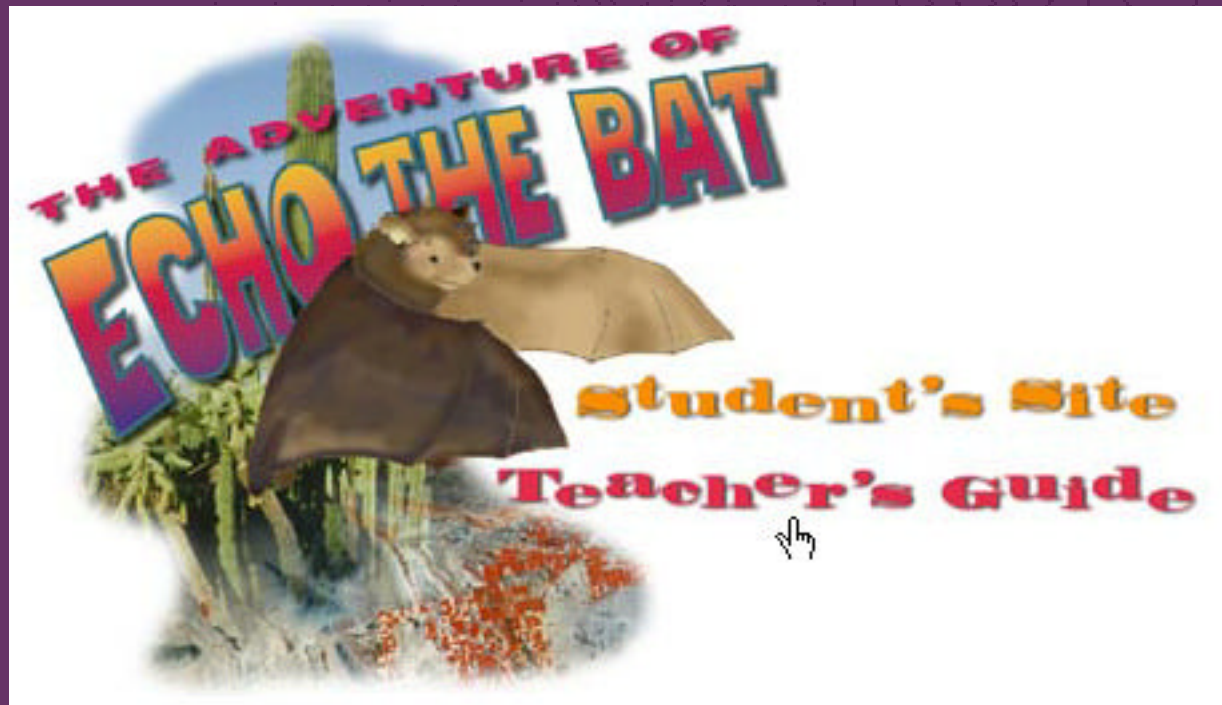
Summary of Descriptions

- 1) The ALT descriptions work just fine for most images
- 2) If you have an image that is crucial to understanding the concepts on a particular page, be nice to users who can't see it, and write up a good description. Use D -links.

IMAGE MAPS

- Aesthetic Graphical Navigation
- Informational Graphical Nav.

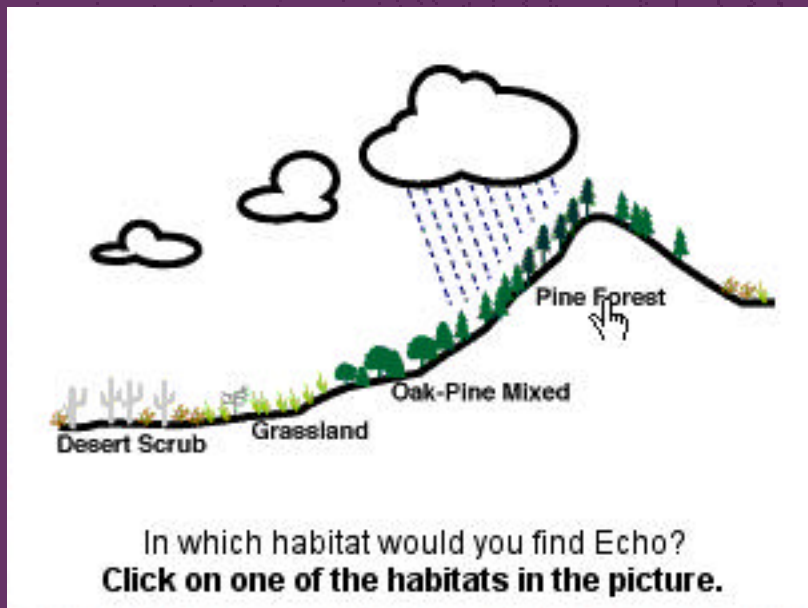
Aesthetic



Recommendation

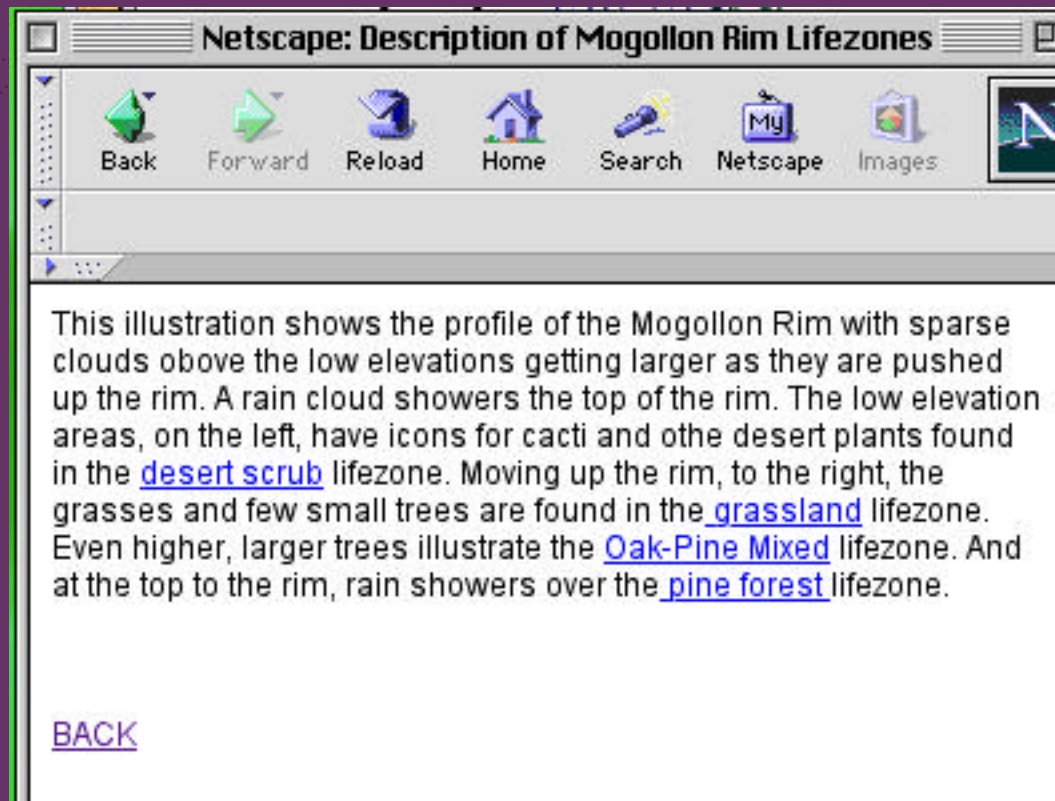
- Provide Alternative description
- Use Client Side Maps
- Physically locate “map” code near ImageMap graphic in your code.

Informational



Recommendation

In addition,
add a D link
and embed
the image
map links
into the
description



Hypertext Links

NOTE about Hypertext

Screen readers allow the users to
TAB through the Hypertext links
on a page - this is a primary screen
navigation tool

How it sounds

When selected, the screen reader
(JAWS) reads in this order

- Reads link text (again)
- Reads file name
- Reads title of page
- Then begins content

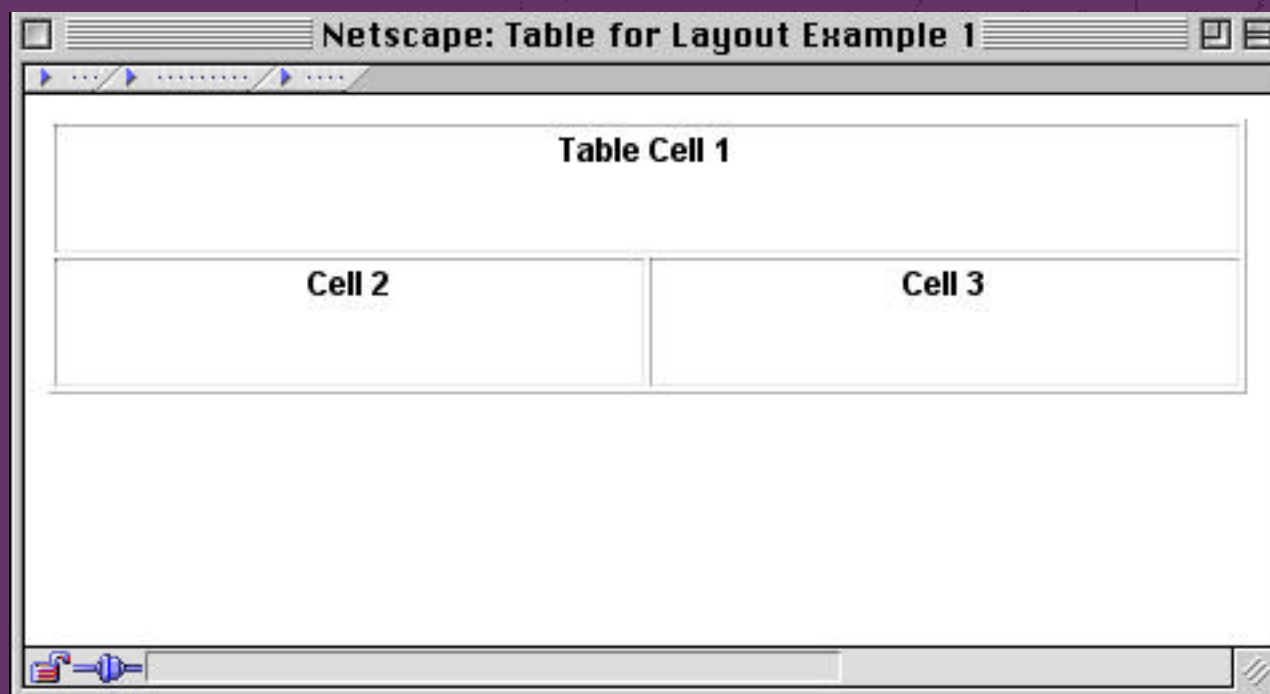
Recommendations

- Link text should be informative
(avoid CLICK HERE)
- Filenames, keep short when possible

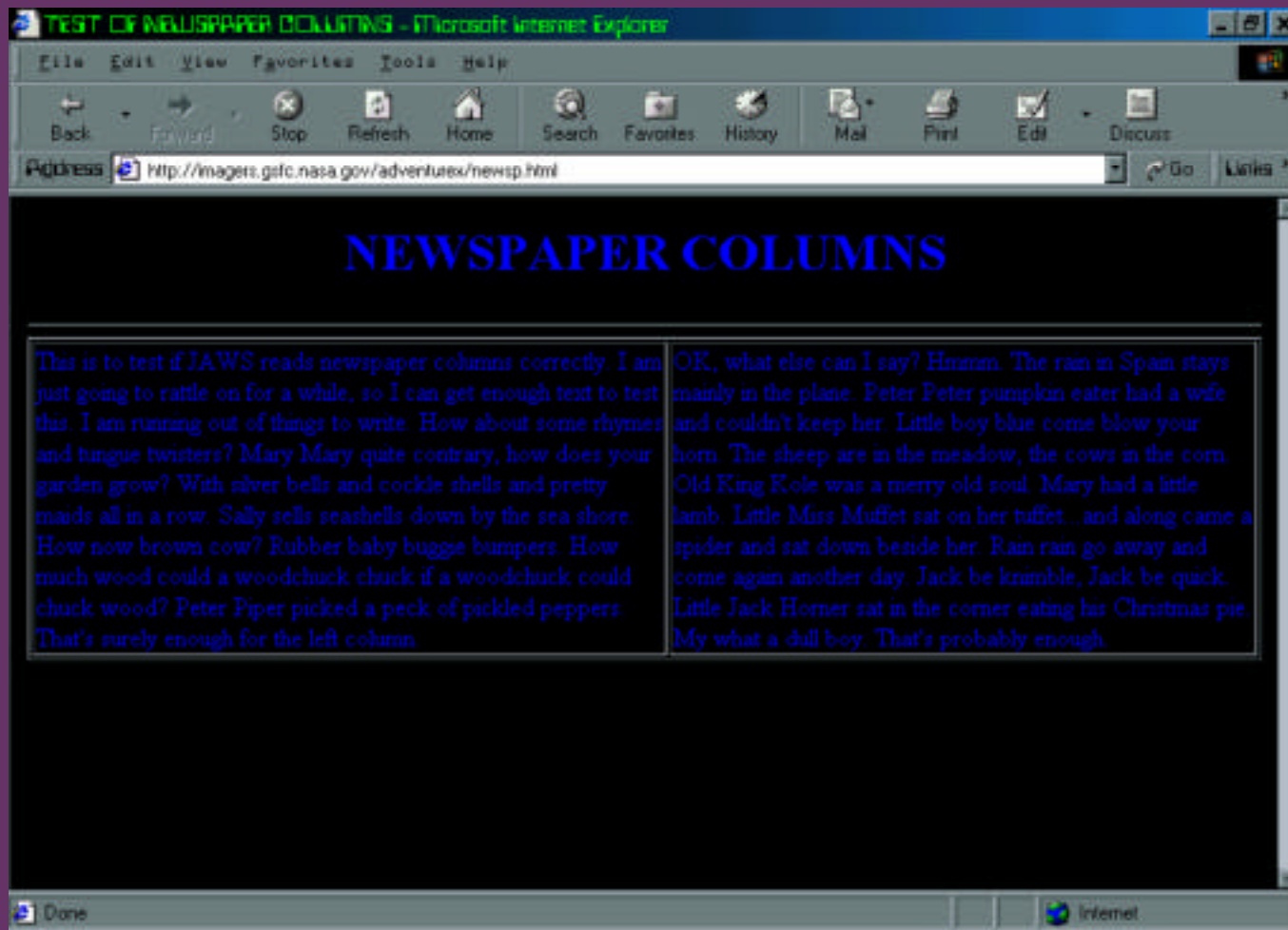
Page Organization

- “Layout Tables” are readable to screen readers
- Use of “Formatting” graphics
- It is all about good CODE
- Code logically...??

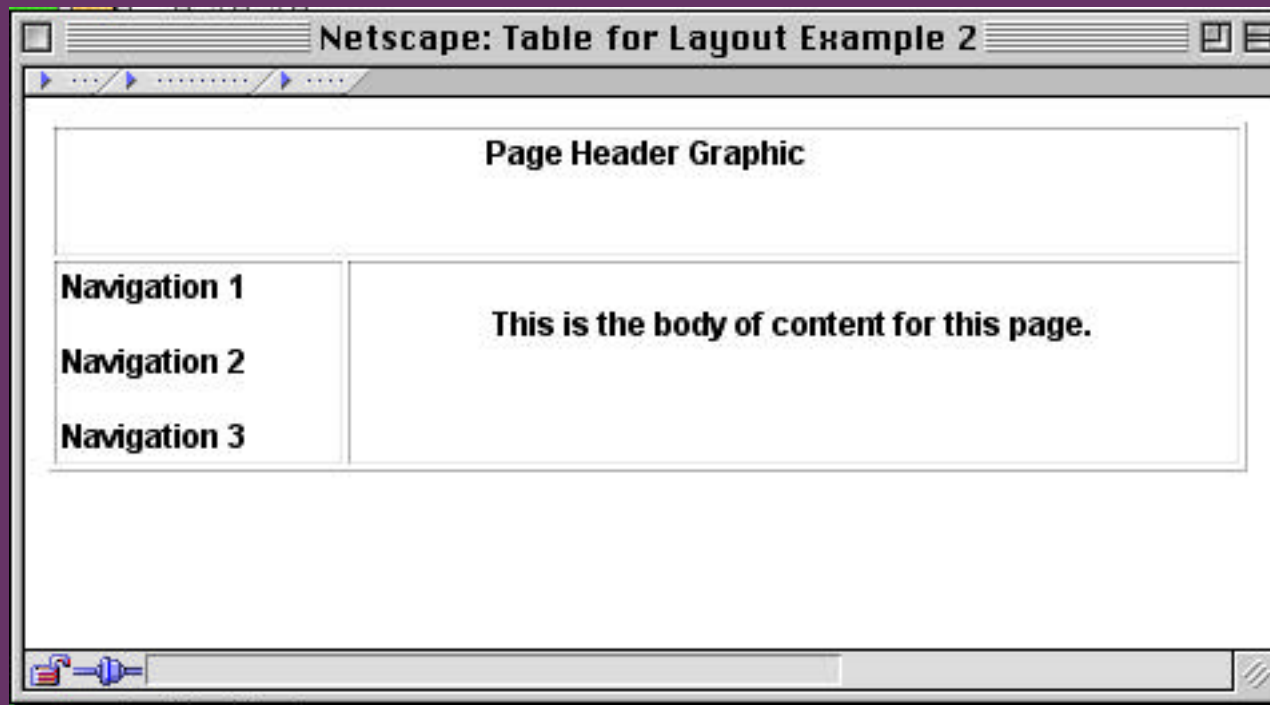
Tables Read Logically?



Newspaper Columns



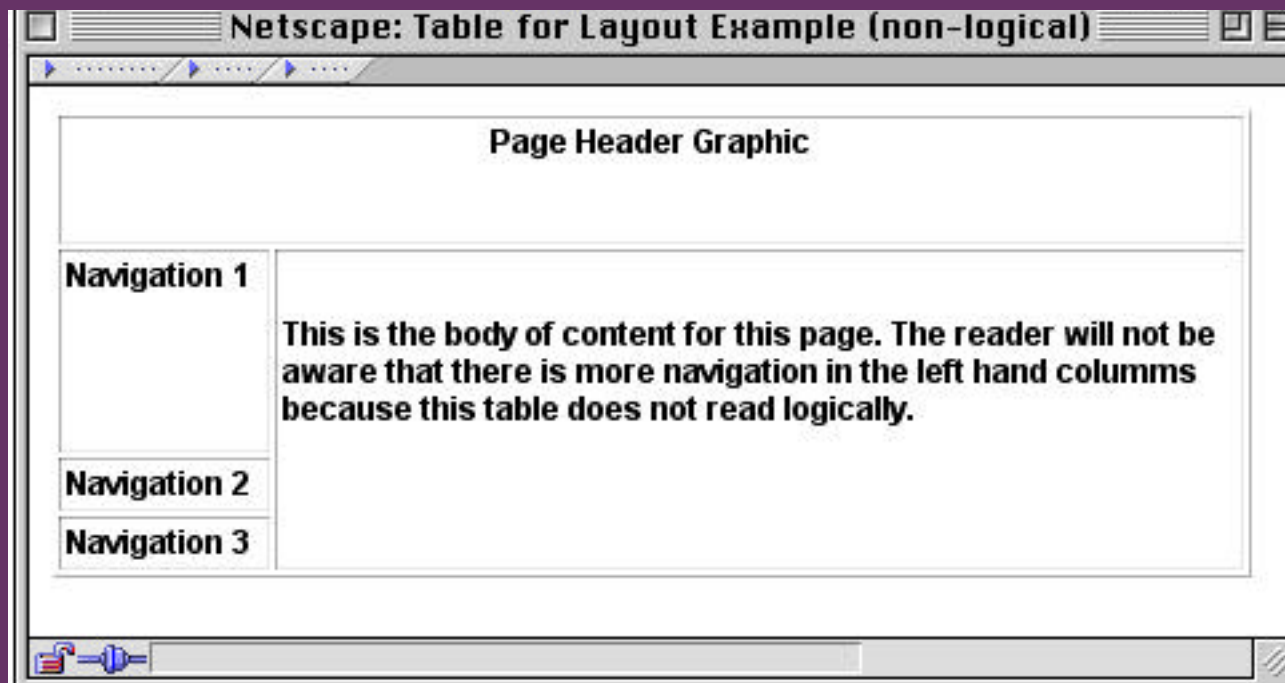
Standard Layout



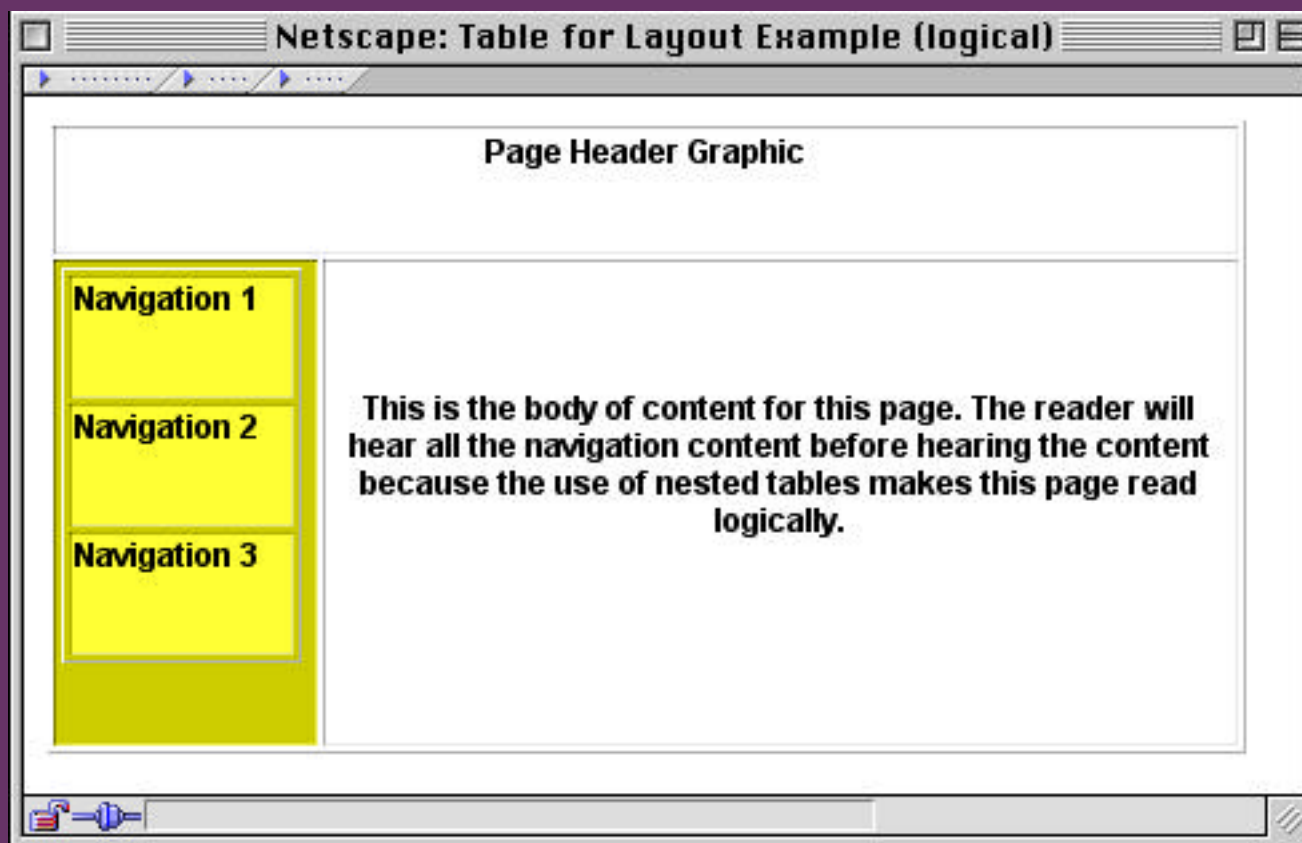
Problems



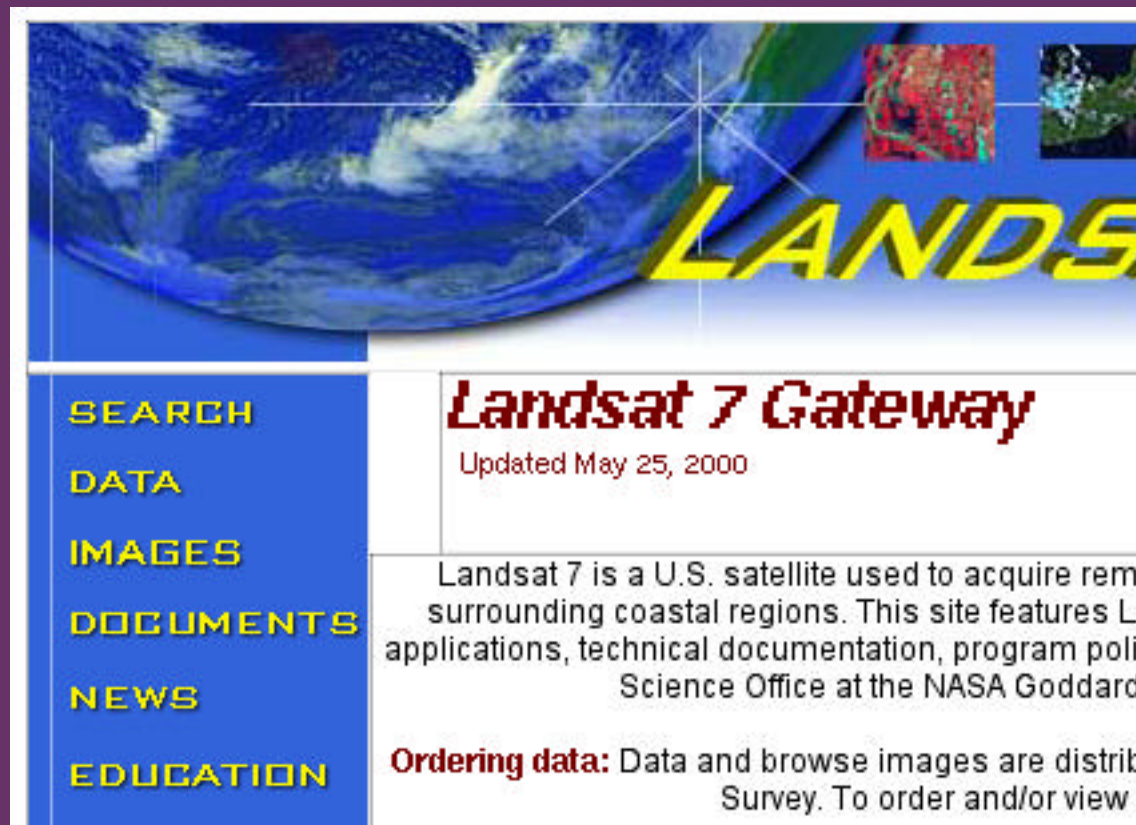
Result is confusing



Reads Logically



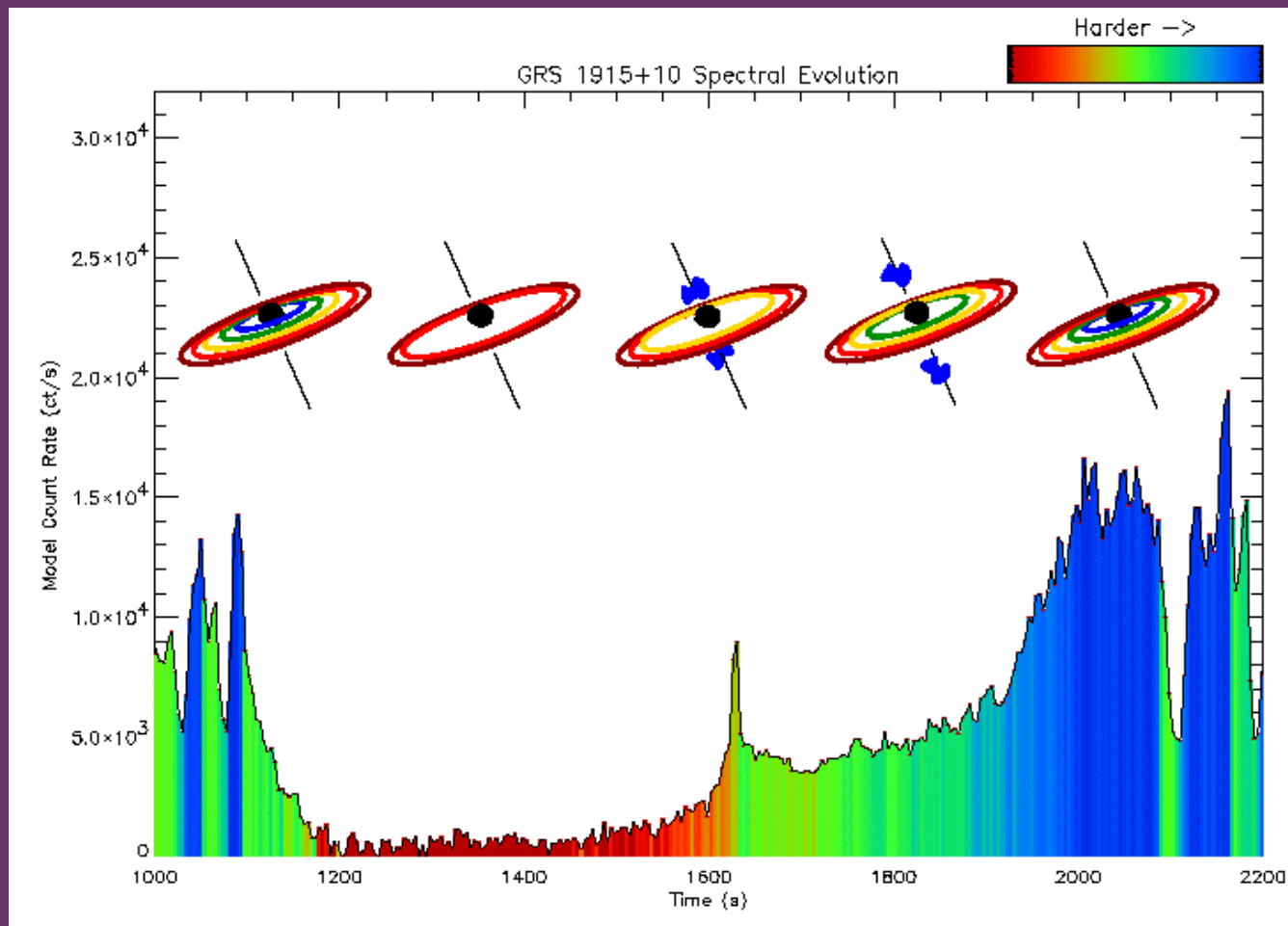
"Helmut" design



Recommendations

- Code tables to read logically
- Limit number of Formatting graphics and add **ALT = " "**
- Consider how code reads linearly when using design techniques such as "HELMUT"

Charts & Graphs



Writing Descriptions 101



Clouds of smoke from the Cerro Grande fire rise behind state Police Officer Rigo Chavarria as he directs traffic leaving Los Alamos, N.M.

Description Tips

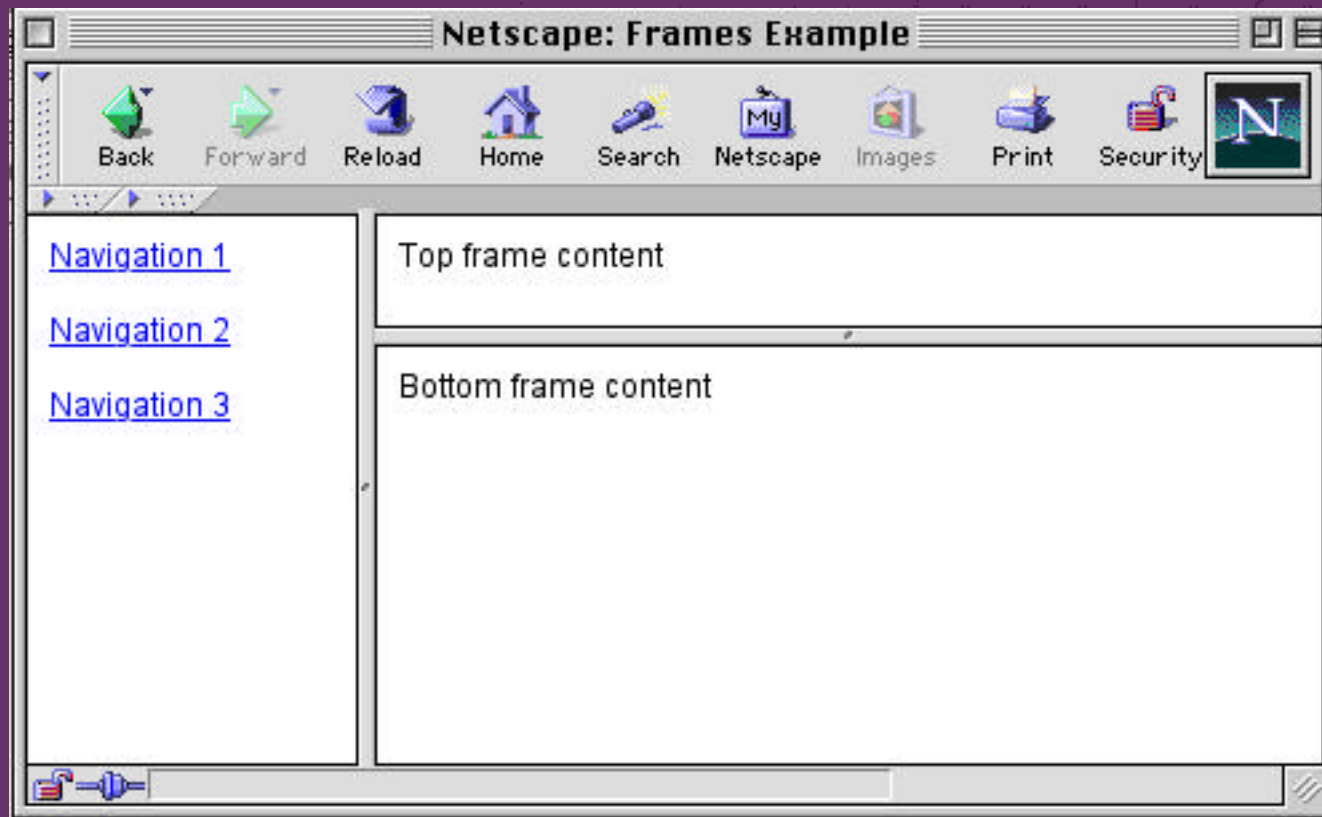
- Tell what it looks like
- Use different descriptions than the page text
- Color
- Contrast (light and dark shading)
- Texture
- Spatial Orientation - left, right, top, bottom
(Where are objects in relation to each other?)
- Relative size of objects

Sample Description

In the foreground of this color photograph stands a policeman. He is standing in the middle of a street, facing the camera. His arms are raised in the air and his fingers point to the left, directing traffic away from the swiftly approaching wildfires. The expression on his face is very serious. There are only a few cars left on the street, because most people have already evacuated the town. Just behind the policeman to the right, stand two National Guardsmen with a large military truck. Towering gray clouds of smoke from the wildfires rise high into the sky in the not so distant horizon behind the policeman. The billowing clouds of smoke are so tall that they reach out of the photograph, and appear to block the sun. They cast an ominous shadow over the scene.

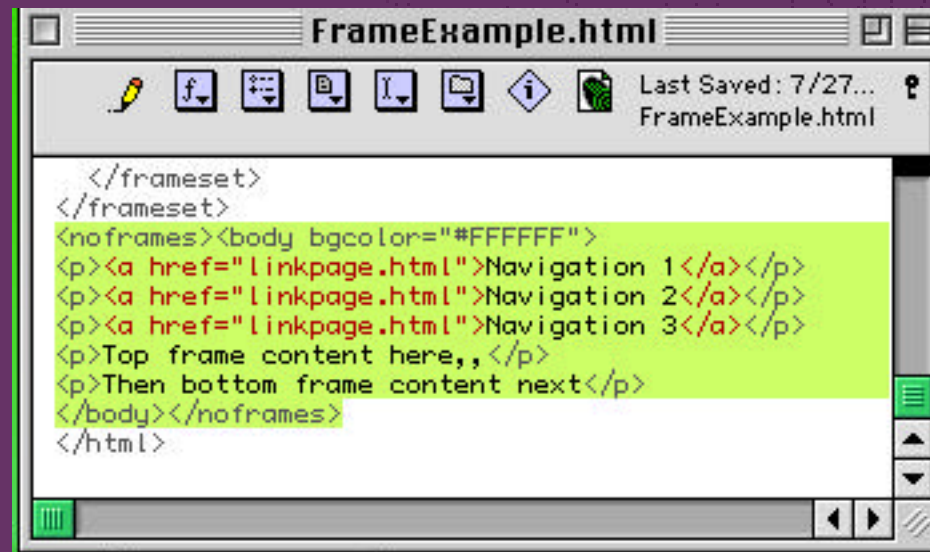
FRAMES

- Use meaningful titles



FRAMES

- Use the NOFRAMES tag



Recommendation

- Provide meaningful titles
- Use NONFRAMES when possible

Tables for Tables

- Use Good CODE
 - Provide Row and Column Headers
- Summarize Tables

Check your work

- We tested our pages using a PC Pentium System running JAWS for Windows, pwSpeak, and ZoomText
- Laboratory for Terrestrial Physics is making this system available to GSFC webmasters

Top 5 Accessibility Tips

5. Client side Image Maps with descriptions

4. Use meaningful hypertext link names

3. Code tables so they read logically

2. Most visually impaired users will be on a PC and using Internet Explorer

1. When needed, use d-links, not longdesc!

Resources

- Lynx Viewer: <http://www.delorie.com/web/lynxview.html>
- Lynx-IT: <http://www.slcc.edu/webguide/lynxit.html>
- JAWS: <http://www.hj.com/JFW/JFW.html>
- pwWebspeak: <http://www.soundlinks.com/pwgen.htm>
http://www.prodworks.com/issound/catalog/catalog_pwwebspeak.html
- Windoweyes: <http://www.4access.com/products/we.htm>
- ZoomText: <http://www.aisquared.com/products/zx.htm>
- iCab: <http://www.icab.de/info.html>
- Bobby: <http://www.cast.org/bobby/>

Resources

- An example page of how to implement d-links and longdesc tag (Break this page)
<http://www.mozillazine.org/articles/article678.html>
<http://www.interlog.com/~joeclark/breakthispage.html>
- W3C Techniques for Web Content Accessibility:
<http://www.w3.org/TR/WAI-WEBCONTENT-TECHS/>
- W3C Checklist of Checkpoints for Web Content Accessibility Guidelines:
<http://www.w3.org/TR/WAI-WEBCONTENT/full-checklist.html>
- How to use <noframes>
<http://hotwired.lycos.com/webmonkey/html/96/33/index2a.html>

The End

PowerPoint presentation online at:

<http://www.echothebat.com/accessibility/talk.html>